one embodiment, the latch assembly **36** is passive, which is defined herein as not requiring energy input to maintain a given position. For example, the latch assembly **36** is passive in that it can maintain the spreader mechanism **50** in the open position without energy input.

The flexible display **38** can be any flexible display able to display graphical information, such as electronic paper, an E ink display, a polymer vision display, an electrowetting display, a polymer light-emitting diode (PolyLED) display, an organic light-emitting diode (OLED) display, a stratified liquid crystal (LC) display, or the like. The flexible display **38** is shown as transparent for clarity of illustration, although the flexible display **38** displays graphical information and can be opaque. The first frame **32** and second frame **34** typically include housing portions (not shown) that are mateable to enclose the flexible display **38** and spreader mechanism **50** when the flexible display device **30** is in the closed position. In this example, the flexible display **38** rolls about an axle (not shown) of the second frame **34** for storage in the closed position. The axle is spring loaded to maintain tension on the flexible display **38** and to bias the spreader mechanism **50** toward the closed position from the open position. In another embodiment, the flexible display **38** is folded when the flexible display device **30** is in the closed position. The flexible display device **30** can be any electronic device displaying information, such as a global positioning system (GPS) receiver, a mobile telephone, a personal digital assistant (PDA), an eBook reader, a photo viewer, an MP3 player, a news alert viewer, a streaming video viewer, a video teleconferencing device, a remote control, an entertainment program guide, or the like.

FIG. **2**, in which like elements share like reference numbers with FIG. **1**, is a detail view of a latch assembly for the flexible display device of FIG. **1** made in accordance with the present invention. In this example, the latch assembly **36** uses a magnet **62** to maintain the spreader mechanism **50** in an open position and a coil **64** to release the spreader mechanism **50**.

The latch assembly **36** includes a spreader lever **60**, a magnet **62**, and a coil **64**. The spreader lever **60** is part of the spreader mechanism **50** and is pivotably attached to the first frame **32** by a pin **66**. The spreader lever **60** is formed of or includes a ferromagnetic material, such as iron, nickel, cobalt, ferromagnetic alloys, and the like, so that the magnet **62** holds the spreader lever **60** against the magnet **62** when the spreader mechanism **50** is in the open position. The magnet **62** is typically a permanent magnet, although those skilled in the art will appreciate that the magnet **62** can be an electromagnet. The coil **64** is disposed on or near the magnet **62**, so that the coil magnetic field from the energized coil **64** offsets the magnet magnetic field of the magnet **62** to the extent required to release the spreader lever **60** from the magnet **62**. In one embodiment, the coil **64** is wound about the axial length of the magnet **62**. Those skilled in the art will appreciate that the magnet **62** and coil **64** can be in any arrangement desired as long as the coil magnetic field can sufficiently offset the magnet magnetic field. The coil **64** is operably connected to an acceleration processor (not shown) that provides a close signal to energize the coil **64** and release the spreader lever **60** of the spreader mechanism **50**. The close signal is generated when an acceleration signal from an acceleration sensor exceeds a predetermined minimum acceleration limit when the flexible display device is dropped.

In operation, the magnet **62** engages the spreader lever **60** when the spreader mechanism **50** is moved to the open position to display the flexible display for use. The magnet **62** holds the spreader mechanism **50** in the open position against the tension on the flexible display which tries to close the flexible display device. When the flexible display device is dropped, the coil **64** receives a close signal from the acceleration processor to energize the coil **64**. The magnetic field of the coil **64** negates the magnetic field of the magnet **62**, which releases the spreader lever **60** holding the spreader mechanism **50** in the open position. The tension on the flexible display moves the spreader mechanism **50** to the closed position so that the spreader mechanism **50** and flexible display are enclosed and protected in the housing of the flexible display device. Typically, the flexible display device is in the closed position before it strikes the floor. In one embodiment, the latch assembly **36** includes a mechanism so that the release of the latch assembly **36** can be performed manually to close the flexible display device. For example, the spreader lever **60** can protrude from the housing of the flexible display device and the user can manually release the spreader lever **60** from the magnet **62** by pushing the spreader lever **60** away from the magnet **62**. In another embodiment, the latch assembly **36** can be activated by the user to close the flexible display device. For example, the coil **64** can be energized by pushing a button or other switch to provide power to the coil **64** as the close signal.

FIG. **3**, in which like elements share like reference numbers with FIG. **1**, is a front view in the extended configuration of another flexible display device made in accordance with the present invention. In this example, the flexible display device uses a solenoid in the latch assembly to mechanically release the spreader mechanism from the open position when the flexible display device is dropped. The flexible display device **30** includes a first frame **32**, a second frame **34**, a flexible display **38**, and a spreader mechanism **50**. The spreader mechanism **50** is operably connected to the flexible display **38** through the first frame **32** and second frame **34** to maintain the flexible display **38** in a planar configuration when the flexible display device **30** is in the open position as illustrated. The spreader mechanism **50** has a latch assembly **36** that maintains the spreader mechanism **50** in an open position.

FIG. **4** is a detail view of a latch assembly for the flexible display device of FIG. **3** made in accordance with the present invention. In this example, the latch assembly **36** uses a transmission lever **90** and spring **86** to maintain the spreader mechanism **50** in an open position and a solenoid **80** to release the spreader mechanism **50**. The latch assembly **36** is shown in the latched position, i.e., the spreader lever **60** is latched with the transmission lever **90** to hold the spreader mechanism **50** in the open position.

The latch assembly **36** includes a spreader lever **60**, a transmission lever **90**, a spring **86**, and a solenoid **80**. The spreader lever **60** is part of the spreader mechanism **50** and is pivotably attached to the first frame **32** by a pin **66**. The transmission lever **90** includes an arm **92** and a catch **94**. The transmission lever **90** is pivotably attached to the first frame **32** by transmission pin **88**. The spreader lever **60** engages the catch **94** of the transmission lever **90** in a latched position when the spreader mechanism **50** is placed in the open position. The spring **86** biases the arm **92** of the transmission lever **90** to lock the spreader lever **60** in place. The solenoid **80** having a solenoid coil **82** and a solenoid plunger **84** is disposed so that the motion of the solenoid plunger **84** releases the spreader lever **60** from the transmission lever **90**. The transmission lever **90** amplifies the motion of the solenoid plunger **84**. The solenoid coil **82** is operably connected to an acceleration processor (not shown) that provides a close signal to energize the solenoid coil **82** and release the spreader lever **60** of the spreader mechanism **50**. The close signal is generated when an acceleration signal from an acceleration